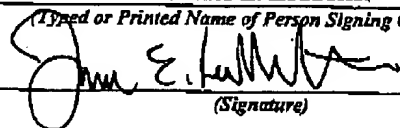


AUG 30 2005

<b>CERTIFICATE OF TRANSMISSION BY FACSIMILE (37 CFR 1.8)</b> Applicant(s): Kuniyuji KAJITA			Docket No. L9289.00121
Serial No. 09/701,433	Filing Date November 29, 2000	Examiner P. M. Chung	Group Art Unit 2133
Invention: RADIO COMMUNICATION APPARATUS AND CODING PROCESSING METHOD			
<p>I hereby certify that this <u>Combined Notice of Appeal &amp; Extension of Time &amp; Req. for Pre-Appeal Brief Conference</u> (Identify type of correspondence) is being facsimile transmitted to the United States Patent and Trademark Office (Fax No. <u>571-273-8300</u>) on <u>August 30, 2005</u> (Date)</p> <p style="text-align: right;">James E. Ledbetter (Typed or Printed Name of Person Signing Certificate)  (Signature)</p> <p style="text-align: center;">Note: Each paper must have its own certificate of mailing.</p>			

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## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Inventor(s): Kuniyuki KAJITA

Art Unit 2133

Appln. No.: 09/701,433

Exr. P. M. Chung

Filed: November 29, 2000

For: RADIO COMMUNICATION APPARATUS AND CODING PROCESSING  
METHODREQUEST FOR PRE-APPEAL BRIEF CONFERENCEAssistant Commissioner of Patents  
Washington, DC 20231

Dear Sir:

This Request is based on the existence of clear errors in the pending rejections and the omission of essential elements in the rejections asserted in the final Rejection needed for a *prima facie* case of obviousness.

Features (1) and (2) discussed below are not met by the applied art whether considered alone or in combination. Moreover, the Final Rejection is erroneous in asserting that Frenger discloses a rate matcher that includes both a repeater and a puncturer.

A. The Invention

The invention and pending claims are discussed in Section A, pages 2-3, of the Response filed July 19, 2005. In brief, independent claims 11, 19, 23, 31 recite, *inter alia*, in the following order, first, error correction coding, then, interleaving, and then, rate matching. Claims 11 and

19 further recite that the rate matching includes alternatively selecting between (i) repeating a part of the interleaved bits and (ii) puncturing a part of the interleaved bits.

**B. The Deficiencies in the Rejections**

The Applicants respectfully submit that Chen, Frenger and Applicants' admitted prior art lack essential elements for a *prima facie* rejection as noted below.

**1. The applied art lacks any teaching or suggestion of steps performed in the order recited in the present claims.**

Chen's FIG. 1 shows a system wherein ECC encoded symbols from convolutional encoder 114 are interleaved in interleaver 115 and then applied to modulator 116. As noted by the Final Rejection, Chen lacks a teaching of rate matching.

Although Frenger discusses "rate-matching" and "interleaving," he does not disclose the order of these operations. Specifically, Frenger does not teach or suggest that puncturing or repetition (i.e., rate matching) is performed after interleaving. In fact, in view of the Hagenauer article cited in the Frenger reference ("Rate-Compatible Punctured Convolutional Codes (RCPC Codes) and their Applications"), a copy of which was submitted with the Response filed July 19, 2005, it is clear that Frenger contemplates performing "interleaving" after the "rate-matching." The cited paper by Hagenauer provides the fundamental concept of the RCPC encoding of Frenger. In other words, the RCPC code used in Frenger was originally disclosed by Hagenauer. Significantly, in Fig. 4 of Hagenauer, the "interleaving" is clearly performed after the rate-matching (RCPC encoding which includes "puncturing"). Frenger by implication adopts this

order. There is nothing in Frenger that would have suggested altering this order taught by Hagenauer.

Accordingly, it is submitted that a combination of Chen and Frenger would not have disclosed or suggested the present claimed invention for the following reasons.

(1) Chen discloses "interleaving" performed after channel "coding" and is silent with respect to rate-matching.

(2) Frenger teaches rate-matching using rate-compatible punctured convolutional codes (RCPC-codes), and he discusses an alternative rate-matching approach involving a higher rate convolutional encoder concatenated with a repetition encoder that repeats some of the bits before transmission. Frenger discusses interleaving only as an incidental matter (see page 355, first column, line 12). Frenger's order would involve rate-matching then interleaving because (1) he discloses "puncturing" or "rate-matching" that is performed within the channel "coding" scheme which is based on RCPC encoding, thus permitting an interleaver to operate only on the output of the RCPC encoder, (2) he discusses an alternative rate-matching scheme involving a convolutional encoder concatenated with a repetition encoder, thus excluding an interleaver interposed between the concatenated convolutional encoder and repetition encoder, and (3) he cites and implicitly adopts Hagenauer's order of rate-matching then interleaving given that his technique is founded upon the Hagenauer article which discloses (see Fig. 4) that "interleaving" is performed after rate-matching (RCPC encoding which includes puncturing).

(3) Frenger lacks any discussion at all of altering the order taught by Hagenauer (RCPC encoding which includes rate-matching, and then interleaving).

(4) Thus, according to points (1)-(3), even if Chen and Frenger were combined, "puncturing" would be performed within the coding before "interleaving" and "repeating" would be performed before interleaving because the convolutional encoder is concatenated with a repetition encoder.

The Applicants' admitted prior art (AAPA) merely discloses a coding device in which, first, the number of bits is increased, and then, the bits are rearranged in an interleaver. This is opposite to the order of the claimed invention (interleaving then rate matching) and thus the AAPA clearly does not cure the deficiencies of Chen and Frenger.

2. The applied art fails to teach or suggest the claimed feature of alternatively selecting between (i) repeating a part of the interleaved bits and (ii) puncturing a part of the interleaved bits.

The "repetition" of Frenger is merely a reference point to prove the higher performance of "puncturing" (see Section V, page 357 of Frenger). Frenger fails to teach performing, in a single apparatus, rate-matching by alternatively selecting between repeating and puncturing. Thus, Frenger does not disclose or suggest the subject matter recited in the present claims directed to performance of rate matching including "alternatively selecting between (I) repeating a part of the interleaved bits and (ii) puncturing a part of the interleaved bits."

3. The Final Rejection is erroneous in asserting that Frenger discloses a rate matcher that includes both a repeater and a puncturer.

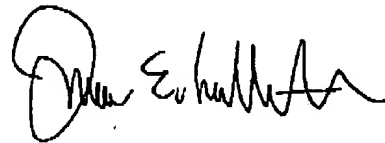
Page 2, at lines 23-24, states that "Frenger et al disclose a rate matcher that comprises a repeater and a puncturer."

However, as noted above, the "repetition" of Frenger is merely a reference point to prove the higher performance of "puncturing" (see Section V, page 357 of Frenger). Frenger fails to teach performing, in a single apparatus, rate-matching by alternatively selecting between repeating and puncturing. And there is nothing in Frenger which suggests combining repeating and puncturing in a single rate-matching device.

Accordingly, in view of the above-noted errors and omissions in the rejections asserted in the Final Rejection, it is submitted that the pending rejections do not make out a *prima facie* case of obviousness, are unwarranted and should be withdrawn.

A notice of allowance is respectfully solicited..

Respectfully submitted,



Date: August 30, 2005  
JEL/att  
ATTORNEY DOCKET NO. L9289.00121  
STEVENS, DAVIS, MILLER & MOSHER, L.L.P.  
1615 L Street, NW  
P.O. Box 34387  
Washington, DC 20043-4387  
Telephone: (202) 408-5100  
Facsimile: (202) 408-5200

James E. Ledbetter  
Registration No. 28,732